



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

Notes on Three New or Noteworthy Diseases of Plants.

BY F. D. CHESTER.

During the work of the past summer my attention has been called to three diseases of cultivated plants, caused by fungi, which are apparently new.

A brief description of them will be given here, while a fuller account, with figures, will be reserved for one of the regular publications of the Experiment Station.

ANTHRACNOSE OF THE TOMATO.

This disease appeared during the past summer upon the grounds of the Experiment Station, where it has caused a considerable destruction of fruit.

So far as observed it does not affect the green tomato, but rather at the point when it just begins to color, and from that on to complete ripening. When, however, an attack is once made, the malady spreads so rapidly as to occasion serious loss before the fruit can be gathered.

The disease shows itself upon the tomato as sunken, discolored spots, each with a dark center, becoming black. These spots increase in size, or by confluence cover a large portion of the decaying fruit. Over this area the fruit is black and shrunk, flattened or depressed, surrounded by a shrunk, corrugated, discolored skin; the dark centers due to the gregarious acervuli with their dark setæ.

The disease is easily and quickly produced by introducing the spores within a puncture made by a sterilized needle, but no results have yet come from repeated attempts to produce the disease by sowing the spores upon the uninjured surface of either ripe or green tomatoes. The fungus causing the trouble is a species of *Colletotrichum*. It is clearly distinct from *C. nigrum* E. & Hal., found by Dr. B. D. Halsted on cultivated peppers, which, however, it somewhat resembles. Attempts to grow the tomato fungus on peppers, even by introducing the spores of the latter beneath the skin, were unsuccessful.

The following botanical description of the fungus is appended:

Colletotrichum Lycopersici, n. sp.

Spots depressed, circular, slightly discolored, center black, 5–10 μ in diameter, afterwards becoming irregular and confluent. Acervuli abundant, densely gregarious, rusty brown to black, applanate, 95–150 mm. in diameter. Setæ abundant, fuliginous, generally curved, rarely undulate or straight, often geniculate in places, gradually tapering, septate, length 65–112 μ , about 5 μ at base. Spores oblong 16–22 μ ×4, average 18–20×4, ends subacute, hyaline, generally containing two to three oil drops which stain brown with osmic acid. Basidia short, slender, 30–40 μ , arising from a well-developed stroma. On fruit of cultivated tomato.

A LEAF SPOT OF CELERY.

Not long since some celery leaves were brought into my laboratory by a local gardener with the complaint that his celery plants were suffering badly. To general appearance the affection seemed to be the ordinary leaf blight, (*Cercospora Apii*, Fres.), but closer observation showed the spots to be covered with numerous black pustules, which upon further examination proved to be the pycnidia of a *Septoria*.

Examinations were at once made in other celery gardens, and in all the same disease was found. The effect upon the plant is very similar to that of the well known leaf blight, causing in extreme cases a complete wilting of the leaves, and in the case of younger growths a complete destruction of the entire plant.

The spores, which germinate readily in water, were sown upon healthy leaves with the result that in fifteen days the characteristic spots were produced at the points of infection, upon which were developed pycnidia containing the spores of this fungus. The fungus of the disease is apparently distinct from *Septoria Pastinacæ*, West, and from *S. pastinacina*, Sacc., both found on *Pastinaca sativa*, L.; the former species having larger and septate spores, while the *Septoria* on celery is to all appearance non-septate. The latter species differs in having much smaller spores (20–30 μ ×7–1 μ) and larger pycnidia (120–150 μ).

The fungus, according to the opinion of Mr. J. B. Ellis, is more closely related to *Septoria Petroselini*, Desm., but is probably not identical with it.

Through Dr. D. H. Halsted I am informed that Briosi has named a variety of the last species, i. e. *S. Petroselini*, var. *Apii*,

which may be the form in question, but in the absence of specimens, the writer has no way of proving the point.

Whether the form in question is a new species, in which case it might be named *Septoria Apii*, or simply the above variety, is unimportant. The fact remains that the presence of this disease is noteworthy and it is therefore brought to the attention of mycologists.

The fungus is described as follows :

Spots amphigenous, white to tawny, irregular, becoming confluent, the entire leaf finally wilting. Pycnidia black, innate, scarcely erumpent, amphigenous, 74-100 μ in diameter, mostly 90 μ , globose-subglobose, loosely gregarious. Sporules hyaline, curved-flexuose, 25-40 $\mu \times$ 2-2.5 μ , apparently non-septate or septulate, eguttulate, one end commonly attenuate.

On leaves of cultivated celery.

BLIGHT OF WATERMELON VINES.

For some years past growers of watermelons in the southern part of Delaware have suffered badly from a disease which seems heretofore to have escaped the notice of mycologists.

During the present season a noted grower in this section experienced almost a complete failure of his crop through the same trouble. The malady was not brought to my notice until rather late in the season, and hence it was difficult to make the extended field observations which would be advisable.

Present observations have demonstrated, however, that the trouble is due to a parasitic fungus, most destructive in its habit, and capable of widespread financial disaster wherever it gains foothold. Young plants, 10 feet or less in length, attacked by the fungus, generally go down completely, while older plants suffer through the more or less complete destruction of their foliage and other tender parts of the vine, preventing completely the further development of the melon. Nor do the young fruit, up to the size of marbles, and fruit buds escape, such parts turning black, and finally developing the mature pycnidia of the fungus.

In short, the disease attacks leaf, leaf stalk, stem, tendrils, fruit buds and blossoms. It shows itself upon the leaves as black, circular or irregular spots, marked by concentric ridges. These spots increase in size and coalesce so as to cover a large

part or all of the leaf. On leaf stalks and tendrils as elongated dark lines, which increase in breadth so as to involve the part and cause it to turn black and shrivel. Similar elongated spots, which afterwards become white in the center, mark its stems, but in the case of these woody growths, the damage I have not found sufficient in the specimens examined to be serious, the injury being mostly confined to the tenderer parts of the vine.

The spores of the fungus, which germinated readily, were sown upon a young watermelon plant, grown from seed in the greenhouse; in three days the plant thus affected began to show signs of disease; in eighteen days the plant was completely dead. An examination of the blackened and wilted leaves showed the pycnidia of the fungus containing the characteristic and well developed sporules.

The check plant uninfected remained healthy, with no signs of the disease.

The fungus causing the above trouble is a member of the genus *Phyllosticta*, although from the character of the sporules, which are sometimes uniseptate and hyaline, it is questionable whether it might not, following Saccardo, be classed as an *Ascochyta*. It seems to differ from either *P. orbicularis*, E. and E., or *P. curbitracearum*, Sacc., found on *Cucurbita Pepo*, L., and is here described as new.

Phyllosticta Citrullina, n. sp.

Spots circular, irregular, black, concentrically ridged, becoming confluent. Pycnidia amphigenous, brown, immersed, scarcely erumpent, membranaceous, lenticular $75-131\ \mu$, average of many measurements $107\ \mu \times 67\ \mu$. Sporules $9-10.7\ \mu$, average about $10\ \mu \times 3.5\ \mu$ generally continuous, sometimes uniseptate, straight, slightly curved, ends obtuse, often biguttulate, hyaline.

On leaves and other parts of watermelon.

Delaware College, Newark, Del., Oct. 27, 1891.

Botanical Notes.

An extraordinary case of fasciation has just been brought me in a specimen of *Rudbeckia hirta* from Warwick, R. I. The plant is about eighteen inches high; the flattened stem, covered with numerous, well-formed leaves, is at its narrowest part over